

5.0 RECOMMENDATIONS

The USACE intends to continue monitoring of the F.E. Walter Reservoir in future years to evaluate trends and to identify potential environmental problems related to human development within the watershed. The USACE is continually seeking to improve the quality and cost-effectiveness of the information gathered as part of this effort. Below, we present three recommendations for improving the monitoring program:

Recommendation 1: Add a monitoring component to assess relative loadings of nutrients, toxic chemicals and sediment from each of the major watersheds draining into the F.E. Walter Reservoir.

The F.E. Walter Reservoir contains several feeder streams, which drain different watersheds. Each of these watersheds has different land use characteristics (e.g., residential, agricultural, forested ecosystems) each of which may contribute a different suite of chemical loadings to the reservoir. Management of water quality problems in the reservoir will require an understanding of the relative loadings of nutrients, toxics, and sediment from each watershed, and in which watersheds these loadings are changing most rapidly. Developing this information could be accomplished by deploying automatic samplers into the major feeder streams to obtain composite samples over randomly selected 24-hour periods, stratified by season, and by conducting special sampling during storm events.

Recommendation 2: Adjust nutrient concentration to account for yearly differences in flow.

The trends presented in this report have not taken into account the effects of flow volume on parameter concentrations. Further analyses using concentrations weighted for stream flow (from USGS gauging stations) would provide a better estimate of trends within the system. These data could be used to calculate total nutrient loadings (kg/day) and could form the basis for creating a nutrient budget for the system. The observed trends should be correlated to management practices in the watershed (e.g., sewage treatment plant construction or upgrades, changes in agricultural activities) to help explain water quality improvements or degradations observed during the monitoring period.

Recommendation 3: Conduct a watershed modeling effort.

A survey of all nutrient and pollutant sources (point source and non-point source) within the F.E. Walter Reservoir watershed could be conducted and presented in a GIS format. Using predicted loadings from the various pollutant sources identified within the watershed, a simple nutrient/DO prediction model could be constructed and verified with the long-term data set. This model could be used to predict the degree of improvement in reservoir water quality that could be obtained through various nutrient control measures such as sewage treatment upgrades and reduced fertilizer application to farmlands.

